

V&V Reference Report

L2 ASCDS Version : 8.4.3

Observation 13480 - L2 Version 2
Chandra X-Ray Center

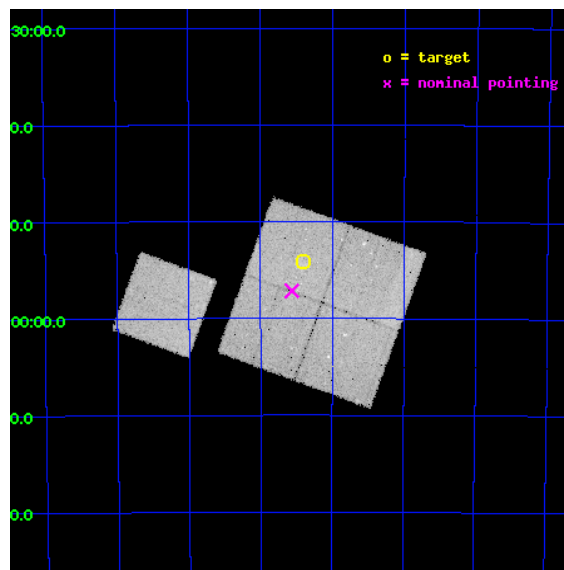
L2 Processing Date : Jan 9 2012

Contents

1	Front	2
2	OBI	3
2.1	OBI	3
2.1.1	Images	3
2.1.2	Bias	3
2.1.3	Parameters	4
2.1.4	Events	4
2.2	Compared Parameters	5
2.3	Aspect	6
2.4	Star Slots	9
2.4.1	Slot 3	9
2.4.2	Slot 4	10
2.4.3	Slot 6	11
2.4.4	Slot 7	12
2.5	FID Slots	13
2.5.1	Slot 0	13
2.5.2	Slot 1	14
2.5.3	Slot 2	15
A	Summary	16
A.1	Status	16
A.2	Comments	16

1 Front

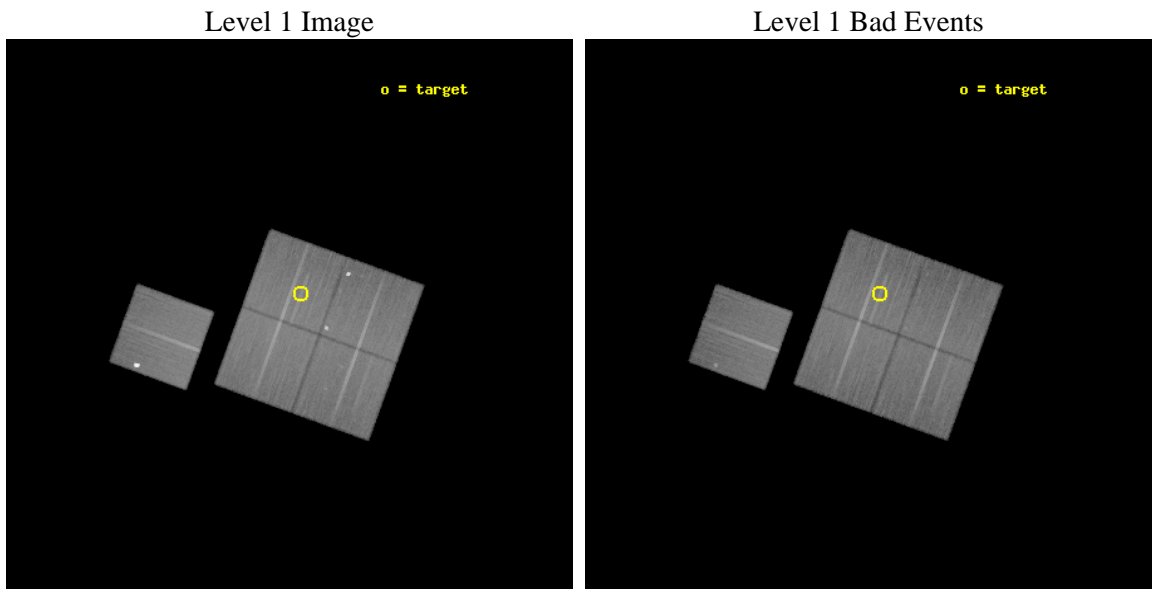
seq_num	801121	Sequence number
obs_id	13480	Observation id
title	Cosmology and Cluster Evolution from the 80 Most Massive Clusters in 2000 deg ² from the South Pole Telescope Survey	Proposal title
observer	Dr Bradford Benson	Principal investigator
object	SPT-CLJ0151-5954	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	27.849583	Observer's specified target RA [deg]
dec_targ	-59.902111	Observer's specified target Dec [deg]
ra_nom	27.89076685969	Nominal RA [deg]
dec_nom	-59.952469560626	Nominal Dec [deg]
roll_nom	289.95753061317	Nominal Roll [deg]
revision	2	Processing version of data
ontime	50052.600384951	Sum of GTIs [s]
livetime	49398.626312733	Livetime [s]
ontime0	50052.600384951	Sum of GTIs [s]
ontime1	50033.754403234	Sum of GTIs [s]
ontime2	50049.459374785	Sum of GTIs [s]
ontime3	50052.600384951	Sum of GTIs [s]
ontime6	50052.600384951	Sum of GTIs [s]
l2events	151888	Number of level 2 events



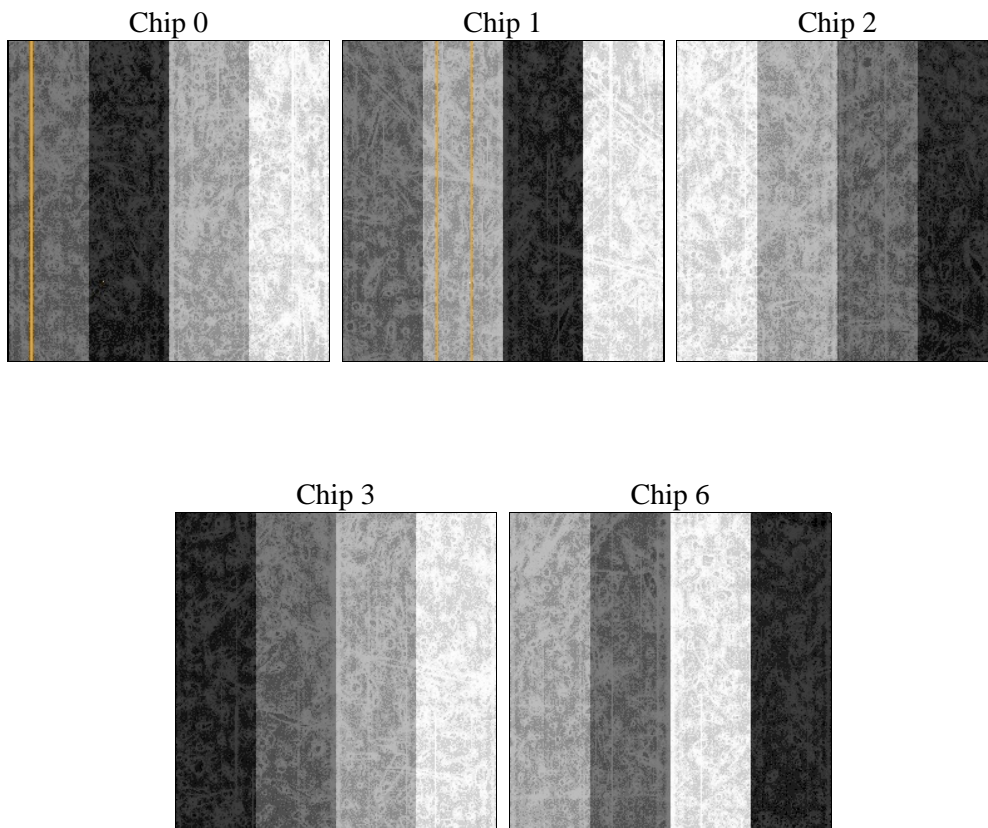
2 OBI

2.1 OBI

2.1.1 Images



2.1.2 Bias



2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	50000.000000	[s] Scheduled observation exposure time
ascdsver	8.4.3	Processing system revision	ontime	50052.600384951	Sum of GTIs [s]
caldbver	4.4.7	 	ontime0	50052.600384951	Sum of GTIs [s]
date	2012-01-09T20:00:00	Date and time of file creation	ontime1	50033.754403234	Sum of GTIs [s]
revision	2	Processing version of data	ontime2	50049.459374785	Sum of GTIs [s]
			ontime3	50052.600384951	Sum of GTIs [s]
			ontime6	50052.600384951	Sum of GTIs [s]
			l1events	1641540	Number of level 1 events

2.1.4 Events

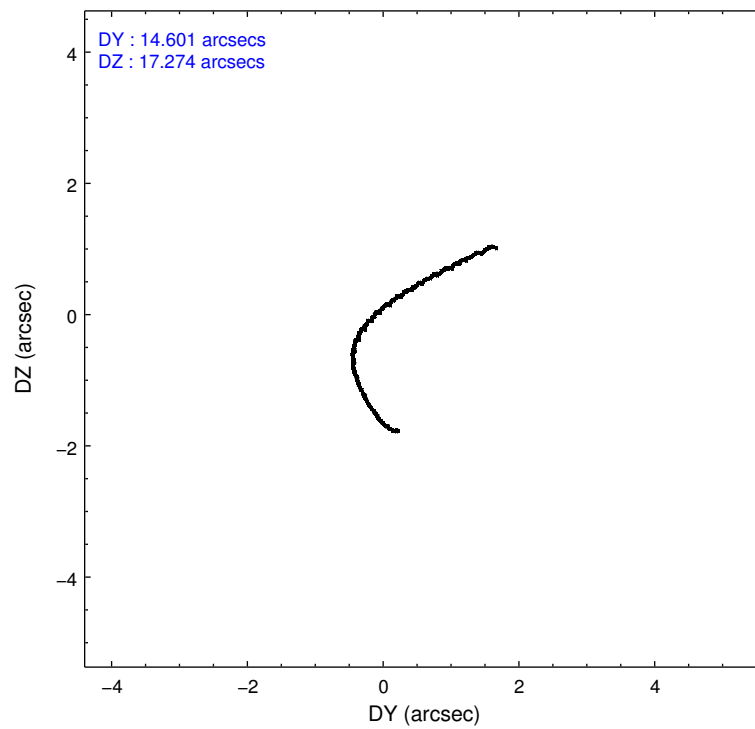
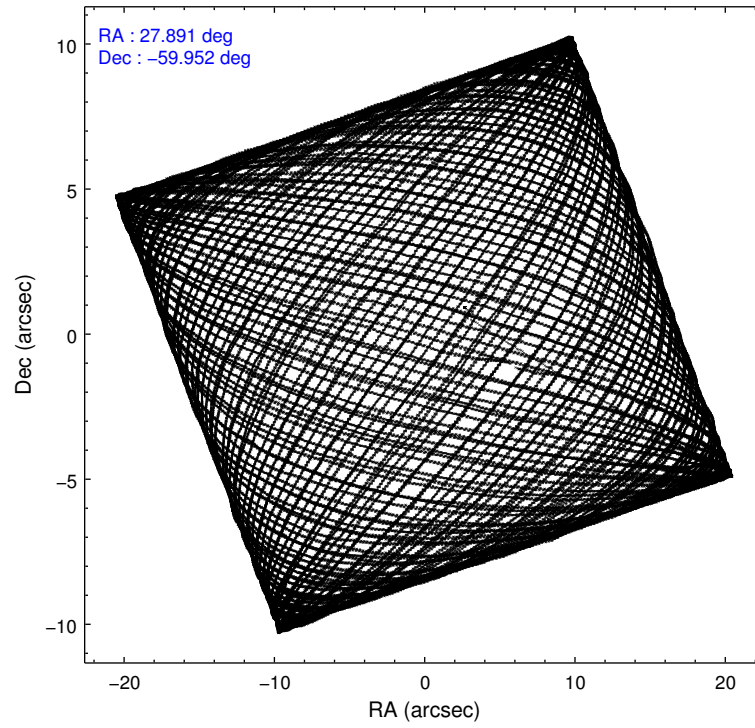
	ccd 0	ccd 1	ccd 2	ccd 3	ccd 6
level 1 events	298470	322302	332135	320772	367861
rejected events	262870	259687	297826	286238	282244
rejected %	88%	80%	89%	89%	76%

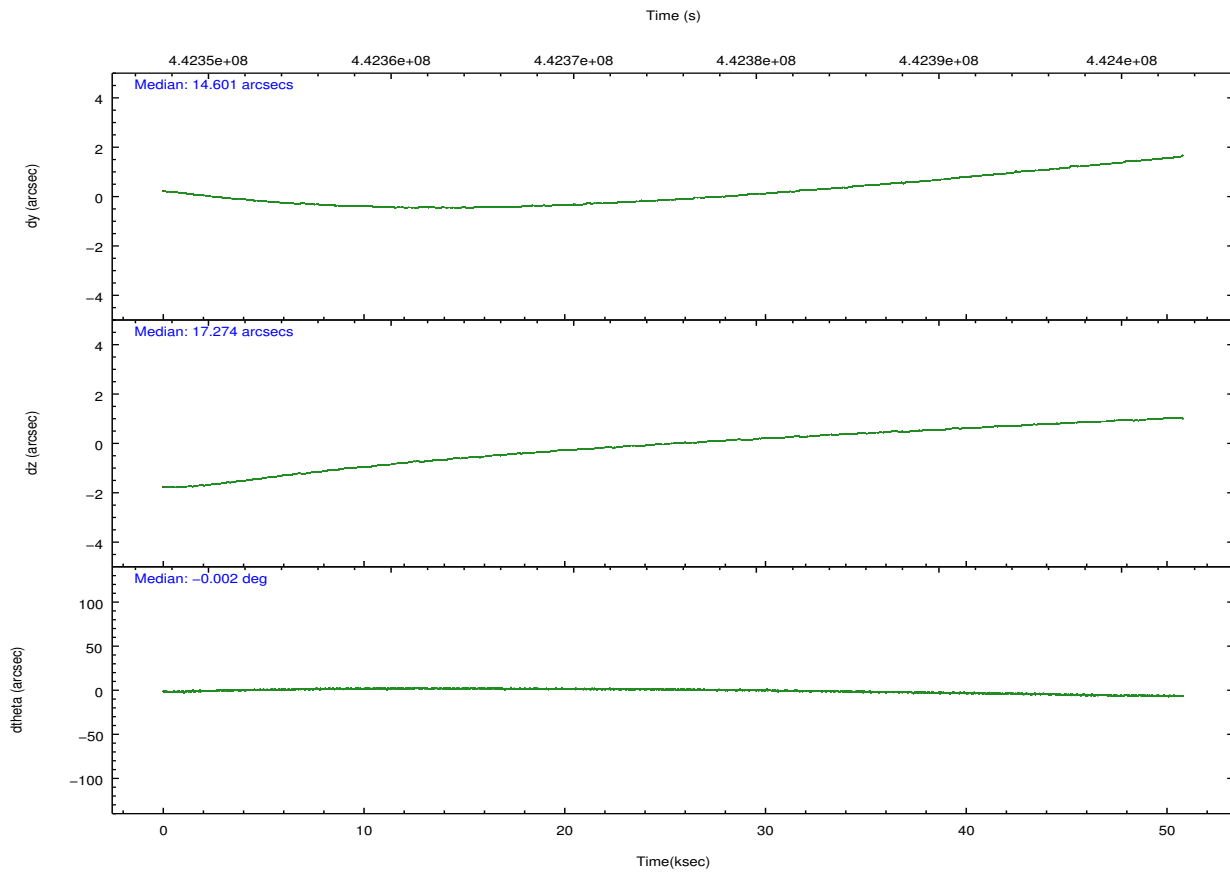
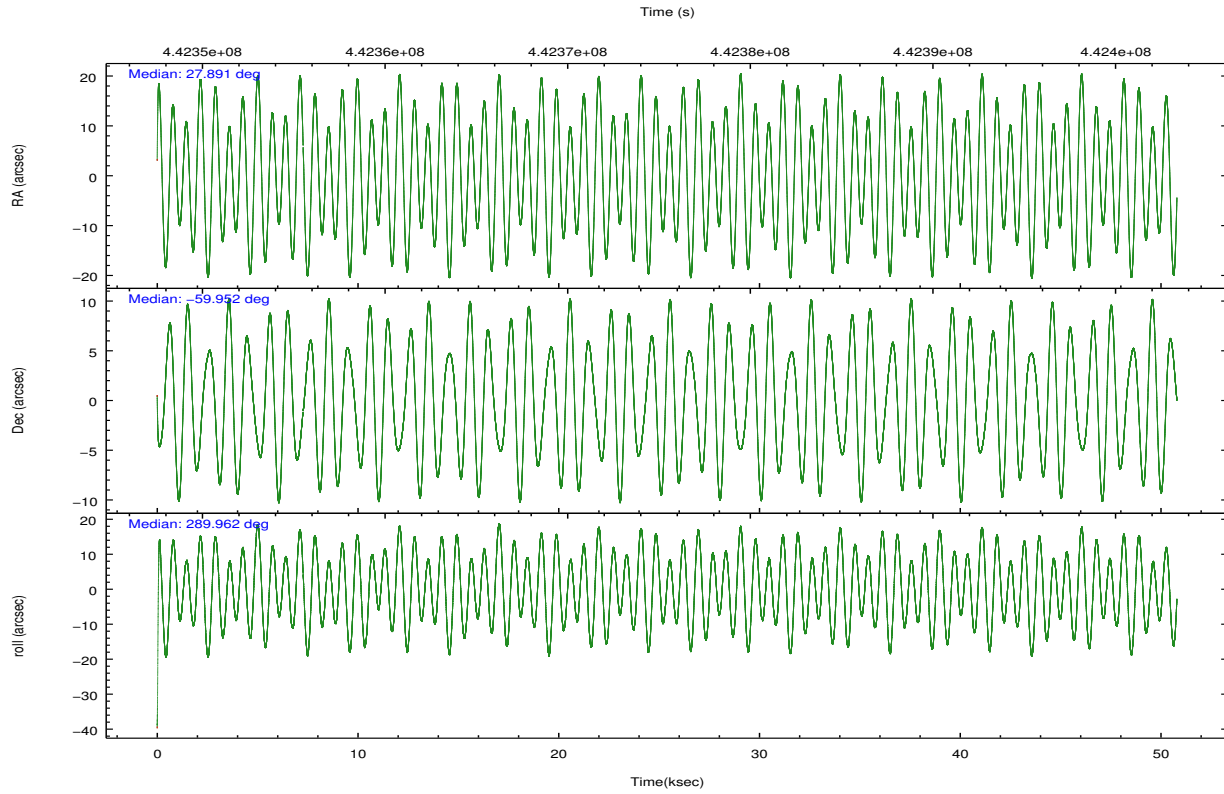
	ccd 0	ccd 1	ccd 2	ccd 3	ccd 6
grade 0 events	12292	20852	11940	12322	11922
	4%	6%	3%	3%	3%
grade 1 events	170	222	210	222	142
	0%	0%	0%	0%	0%
grade 2 events	8905	25330	8593	7687	57799
	2%	7%	2%	2%	15%
grade 3 events	3748	4022	3481	3740	3730
	1%	1%	1%	1%	1%
grade 4 events	3447	3950	3522	3642	3670
	1%	1%	1%	1%	0%
grade 5 events	13376	14434	12802	15279	14673
	4%	4%	3%	4%	3%
grade 6 events	7212	8464	6775	7144	8501
	2%	2%	2%	2%	2%
grade 7 events	249320	245028	284812	270736	267424
	83%	76%	85%	84%	72%

2.2 Compared Parameters

Parameter	Planned	Actual	Parameter	Planned	Actual
Instrument	ACIS	ACIS	Obspar format version number	7	7
Detector	ACIS-01236	ACIS-01236	Obspar file type	PREDICTED	ACTUAL
Grating	NONE	NONE	Obspar update status	NONE	UPDATED
Data mode	VFAINT	VFAINT	CCD I0 on	Y	Y
Observation mode	POINTING	POINTING	CCD I1 on	Y	Y
[deg] Pointing RA	27.848625	27.89076685969037	CCD I2 on	Y	Y
[deg] Pointing Dec	-59.934868	-59.95246956062639	CCD I3 on	Y	Y
[deg] Pointing Roll	289.712384	289.9575306131689	CCD S0 on	N	N
[mm] SIM focus pos	-0.782348	-0.7809083437167272	CCD S1 on	N	N
[mm] SIM defocus	0	0.001439871863259334	CCD S2 on	O1	Y
[mm] SIM translation stage pos	-225.842463	-225.8433433320239	CCD S3 on	N	N
[mm] SIM translation stage offset	-7.75	-7.749109670905796	CCD S4 on	N	N
[s] Observation start time (MET)	442350842.184000	442349062.65178	CCD S5 on	N	N
Observation start date	2012-01-07T19:12:56	2012-01-07T18:44:22	Number of optional ACIS chips dropped	0	0
[s] Observation end time (MET)	442400842.184000	442402116.14208	On-chip summing requested	N	N
Observation end date	2012-01-08T09:06:16	2012-01-08T09:28:36	Subarray requested	NONE	NONE
Read mode	TIMED	TIMED	Alternating exposures requested	N	N
			[s] Primary exposure time	0.000000	3.1

2.3 Aspect



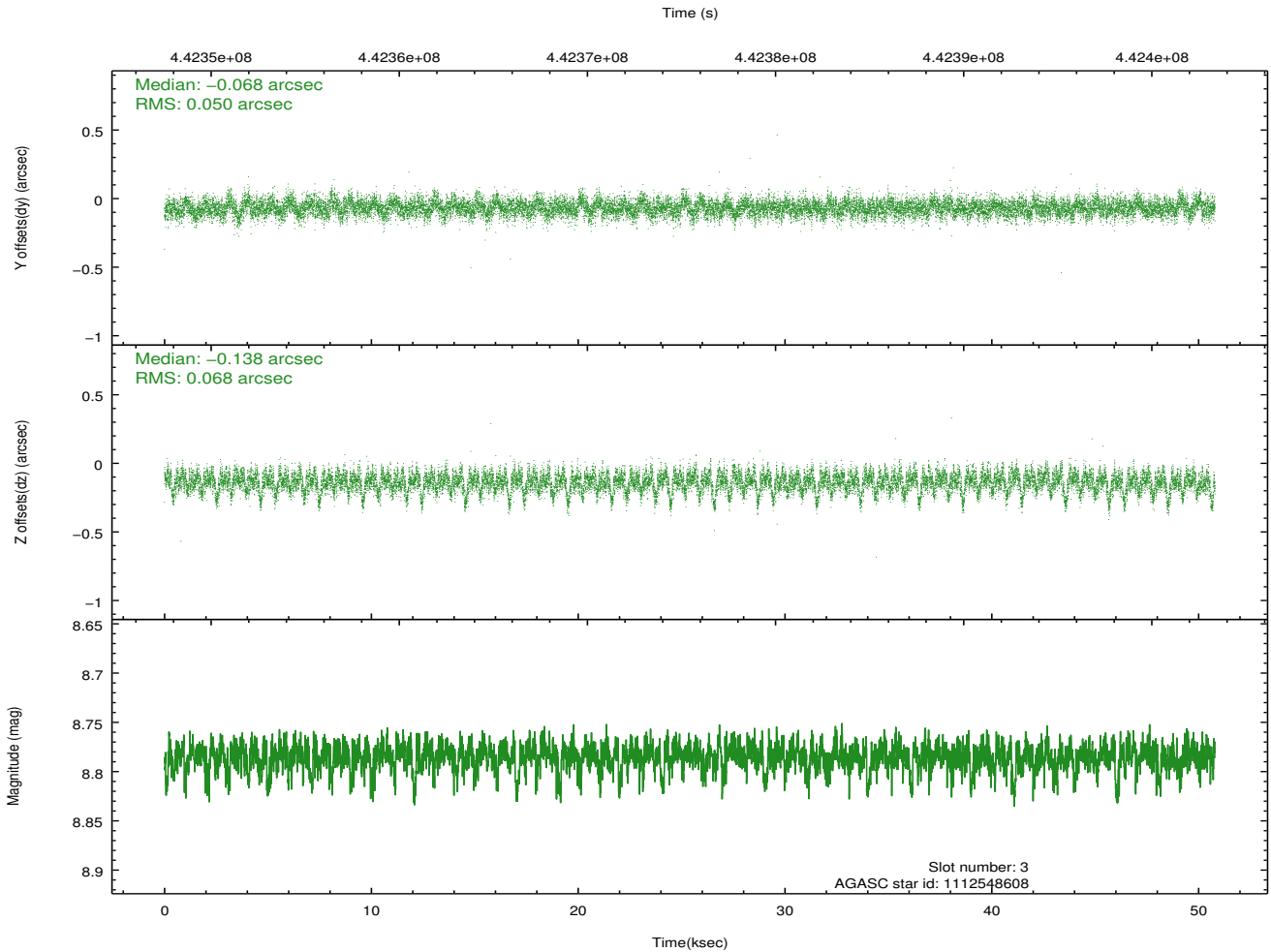
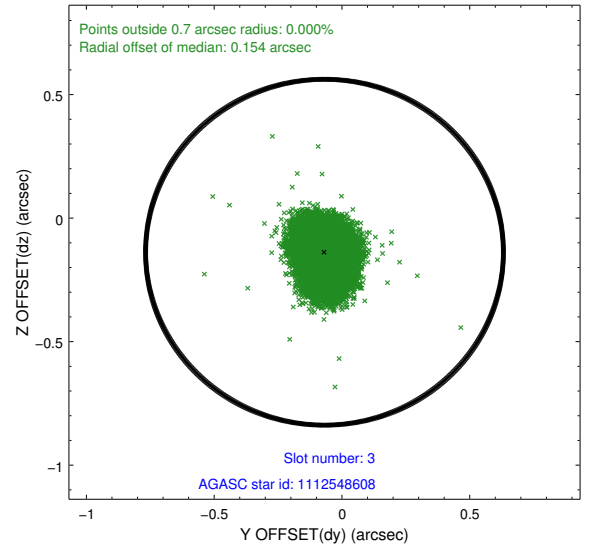
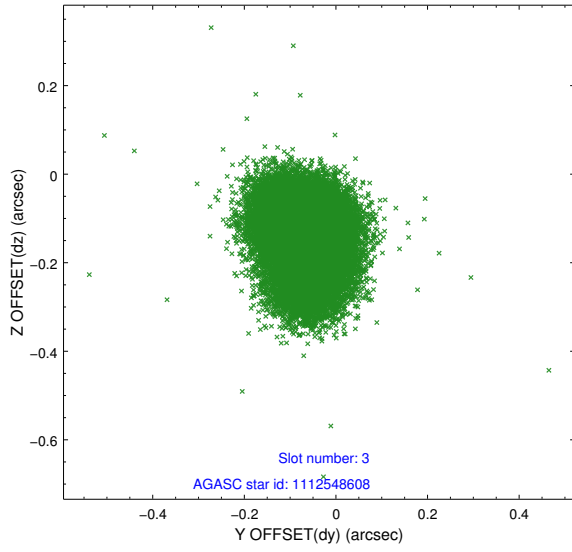


Slot Statistics

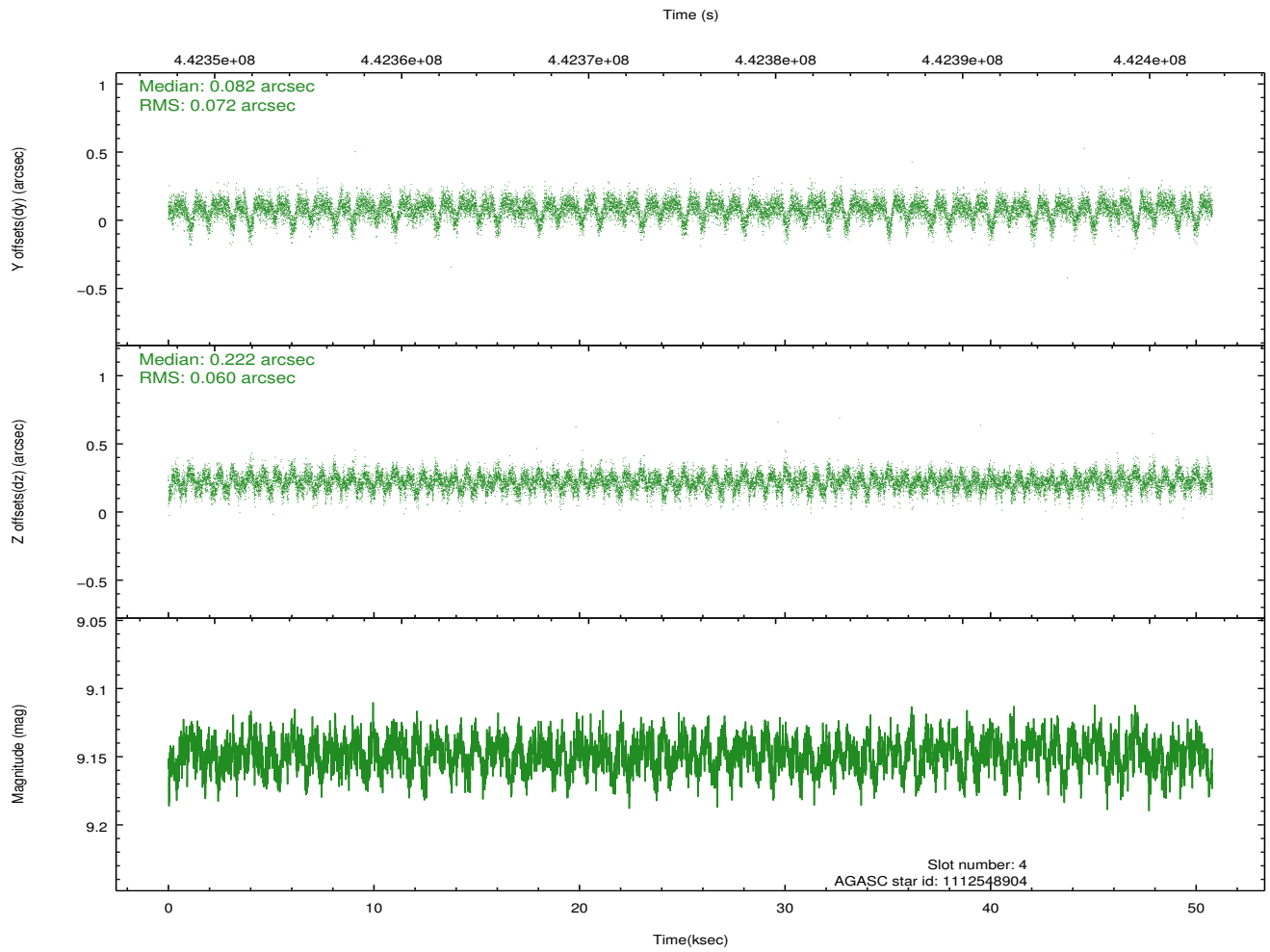
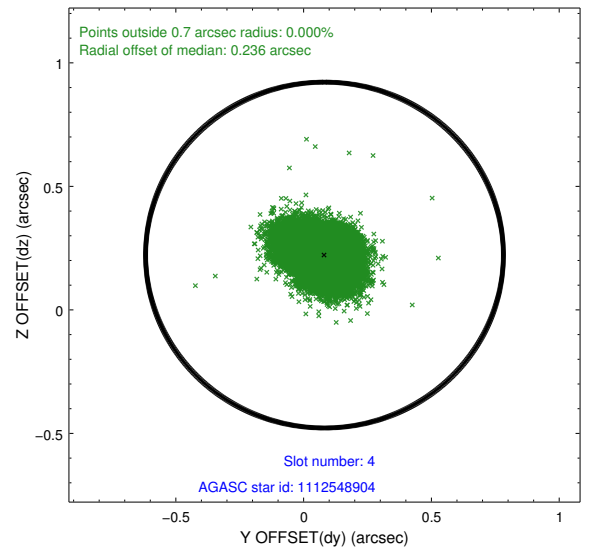
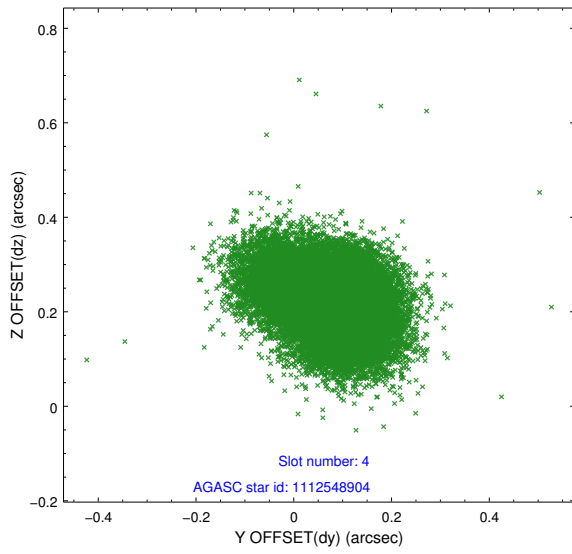
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-I-1	7.08	12391	0.156	-0.096	0.026	0.038	0.000000	0.000000	924.67	-999.96
1	FID	ACIS-I-5	7.08	12389	-0.326	0.123	0.012	0.034	0.000000	0.000000	-1823.94	897.73
2	FID	ACIS-I-6	7.09	12391	0.077	0.042	0.019	0.048	0.000000	0.000000	390.15	1542.15
3	GUIDE	1112548608	8.78	24760	-0.068	-0.138	0.088	0.149	28.282035	-59.412566	-1500.53	1381.84
4	GUIDE	1112548904	9.15	24759	0.082	0.222	0.098	0.165	27.315536	-59.373409	-2228.95	-239.95
5	OMITTED		0.00	0	0.000	0.000	0.000	0.000	0.000000	0.000000	0.00	0.00
6	GUIDE	1111628512	9.23	24755	0.075	0.015	0.115	0.188	26.268874	-59.718198	-1669.50	-2448.46
7	GUIDE	1160121336	8.62	24762	-0.080	-0.089	0.083	0.133	29.095398	-60.192716	1647.15	1778.32

2.4 Star Slots

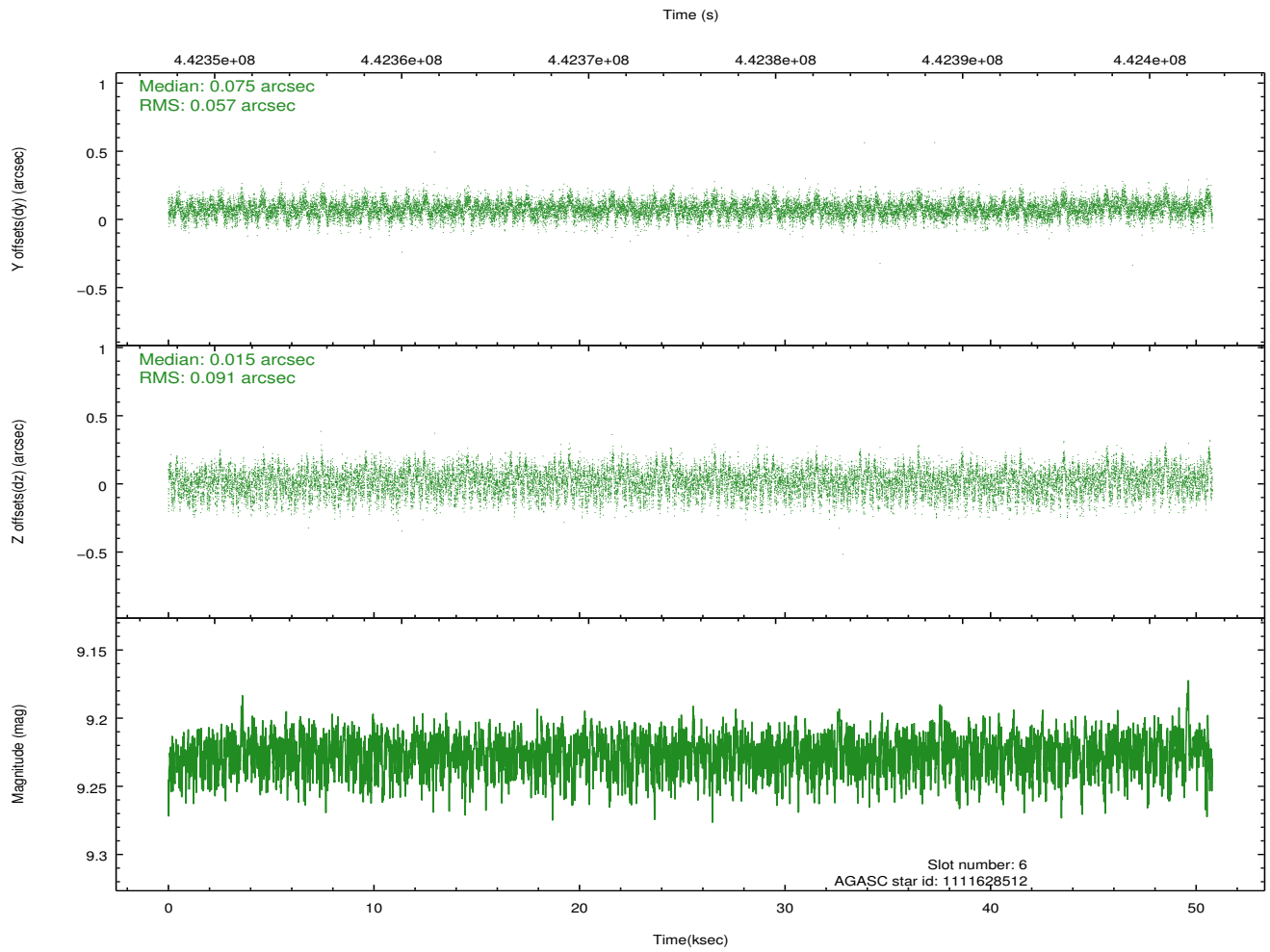
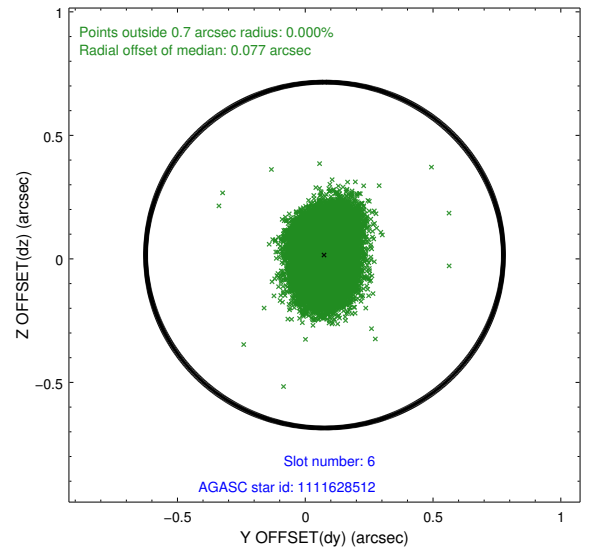
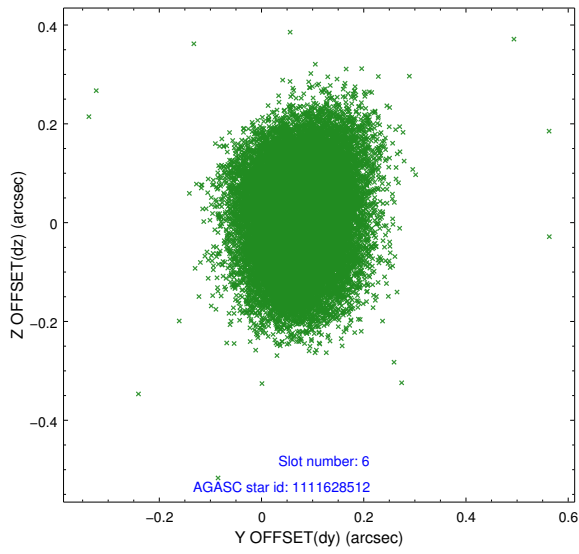
2.4.1 Slot 3



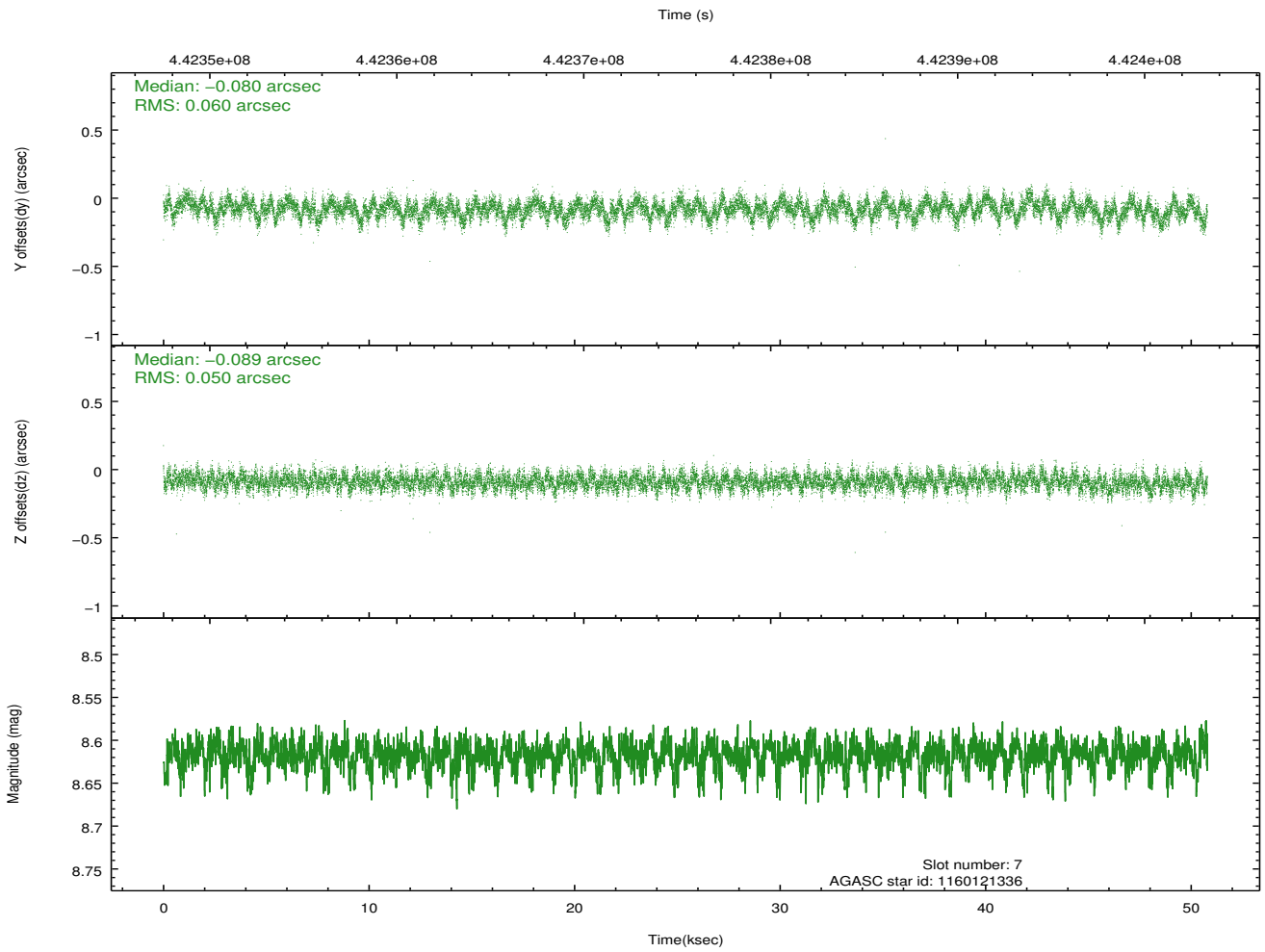
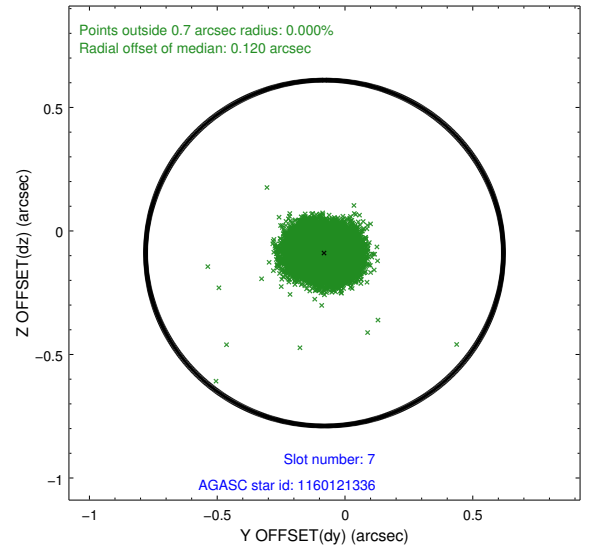
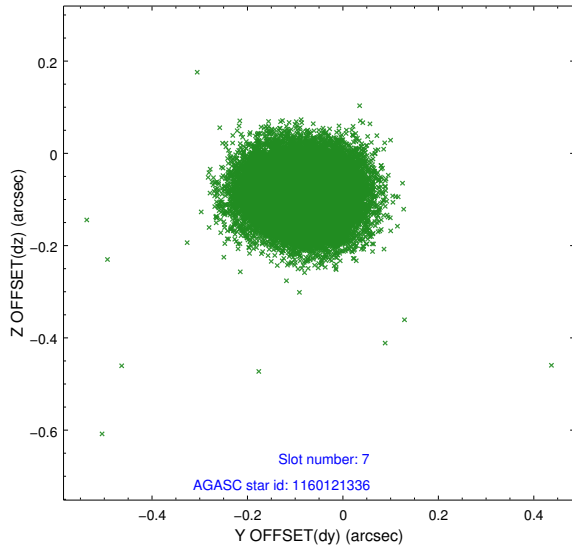
2.4.2 Slot 4



2.4.3 Slot 6

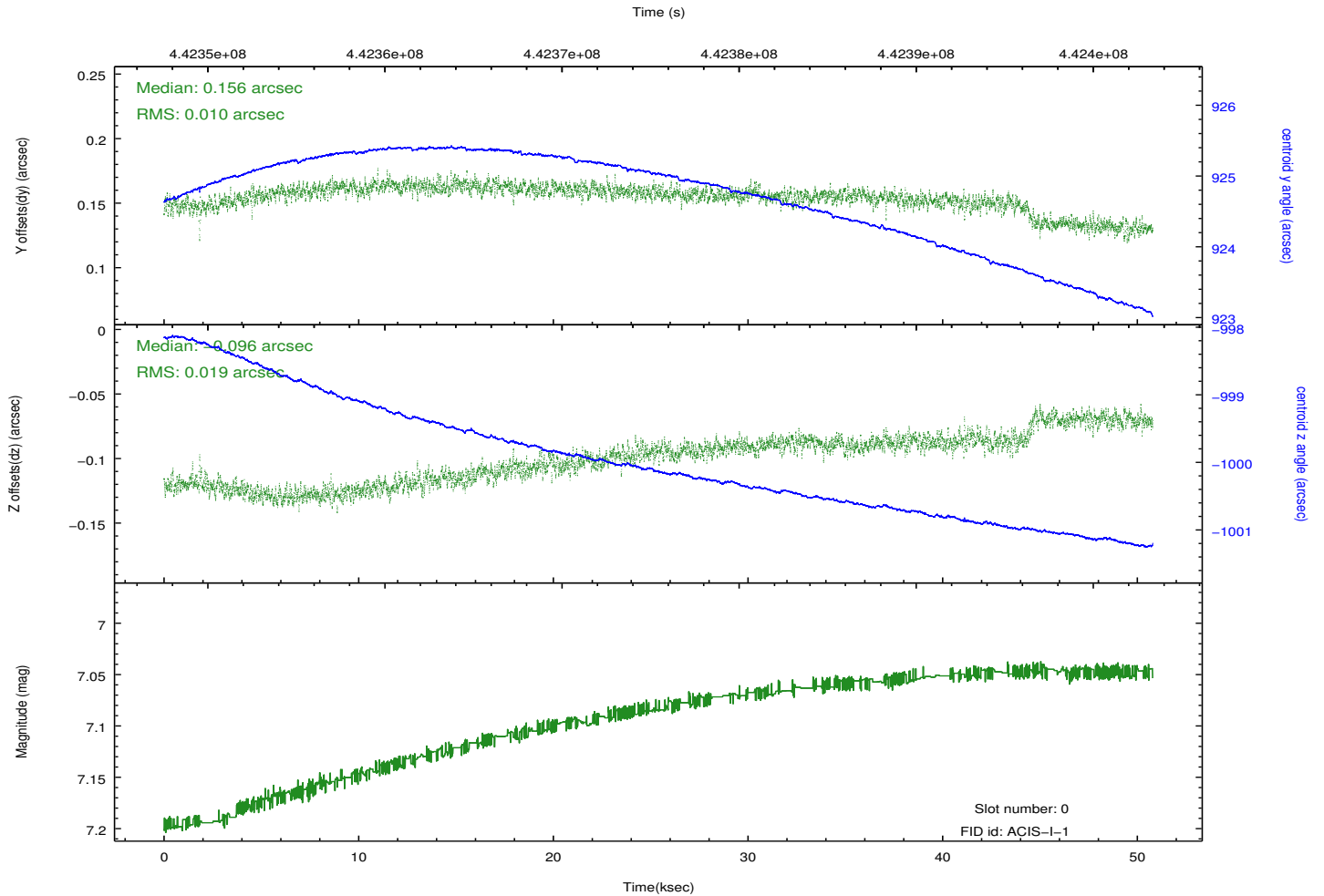
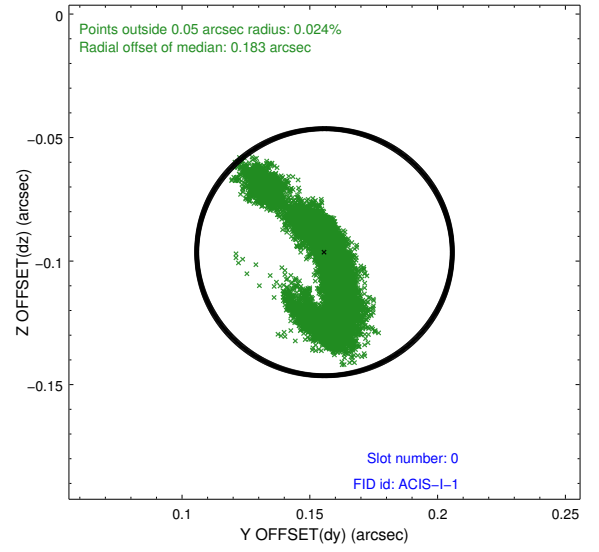
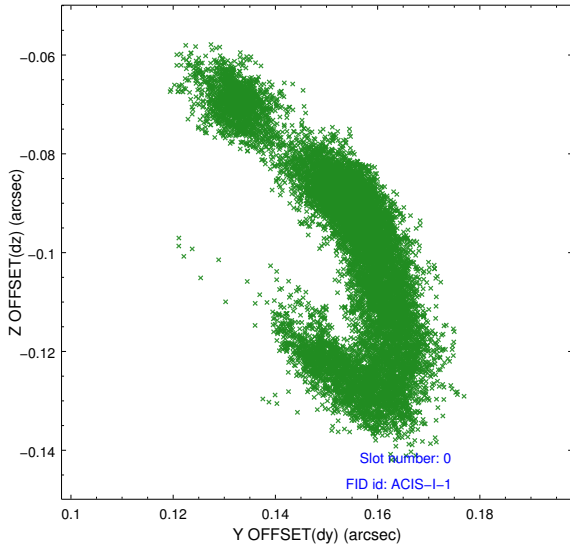


2.4.4 Slot 7

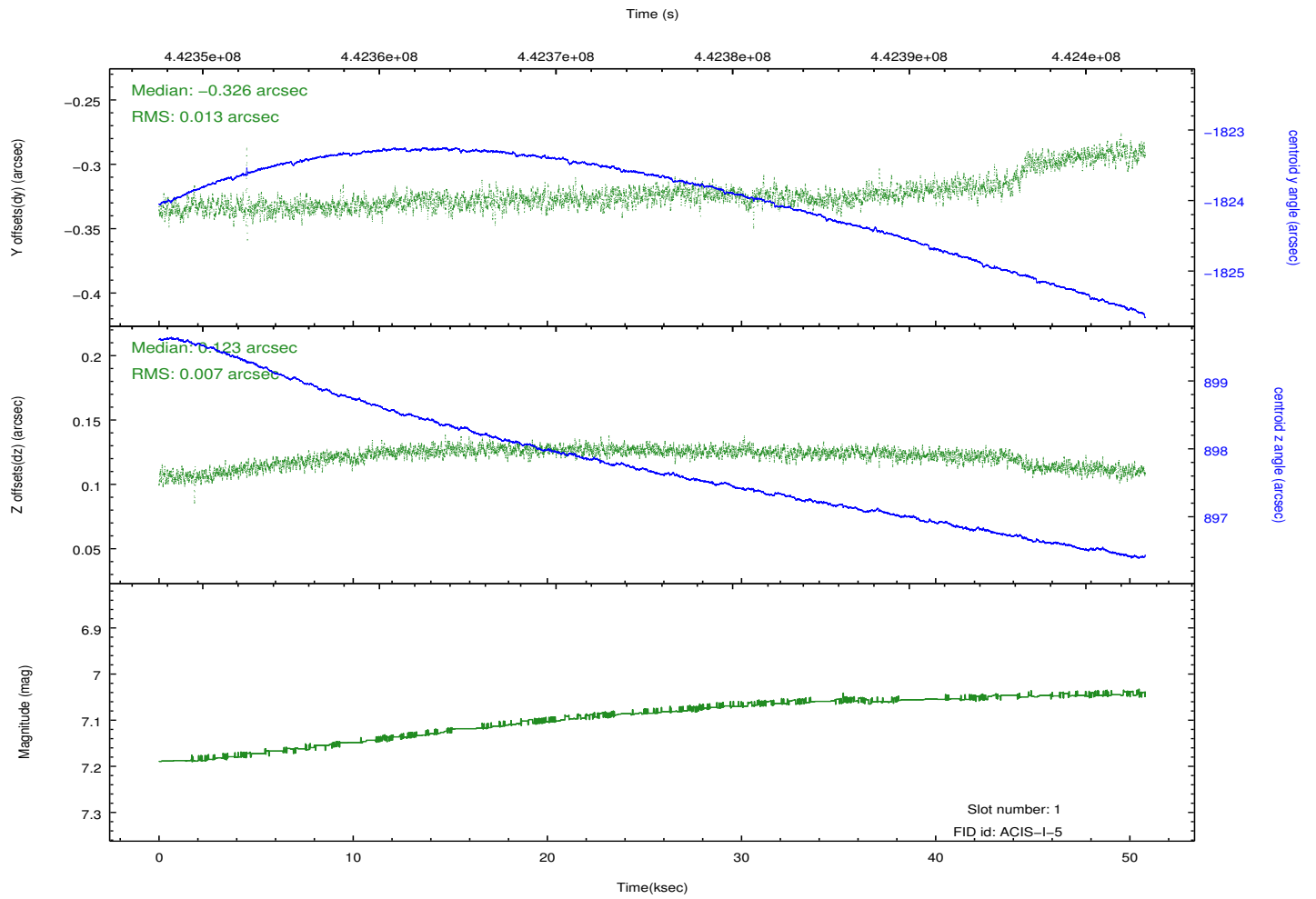
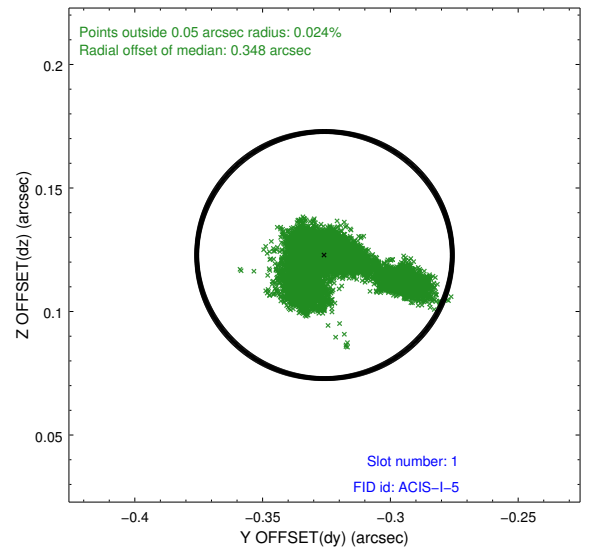
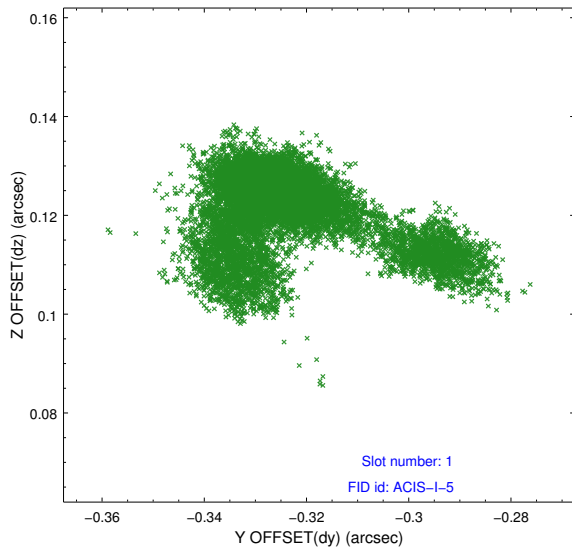


2.5 FID Slots

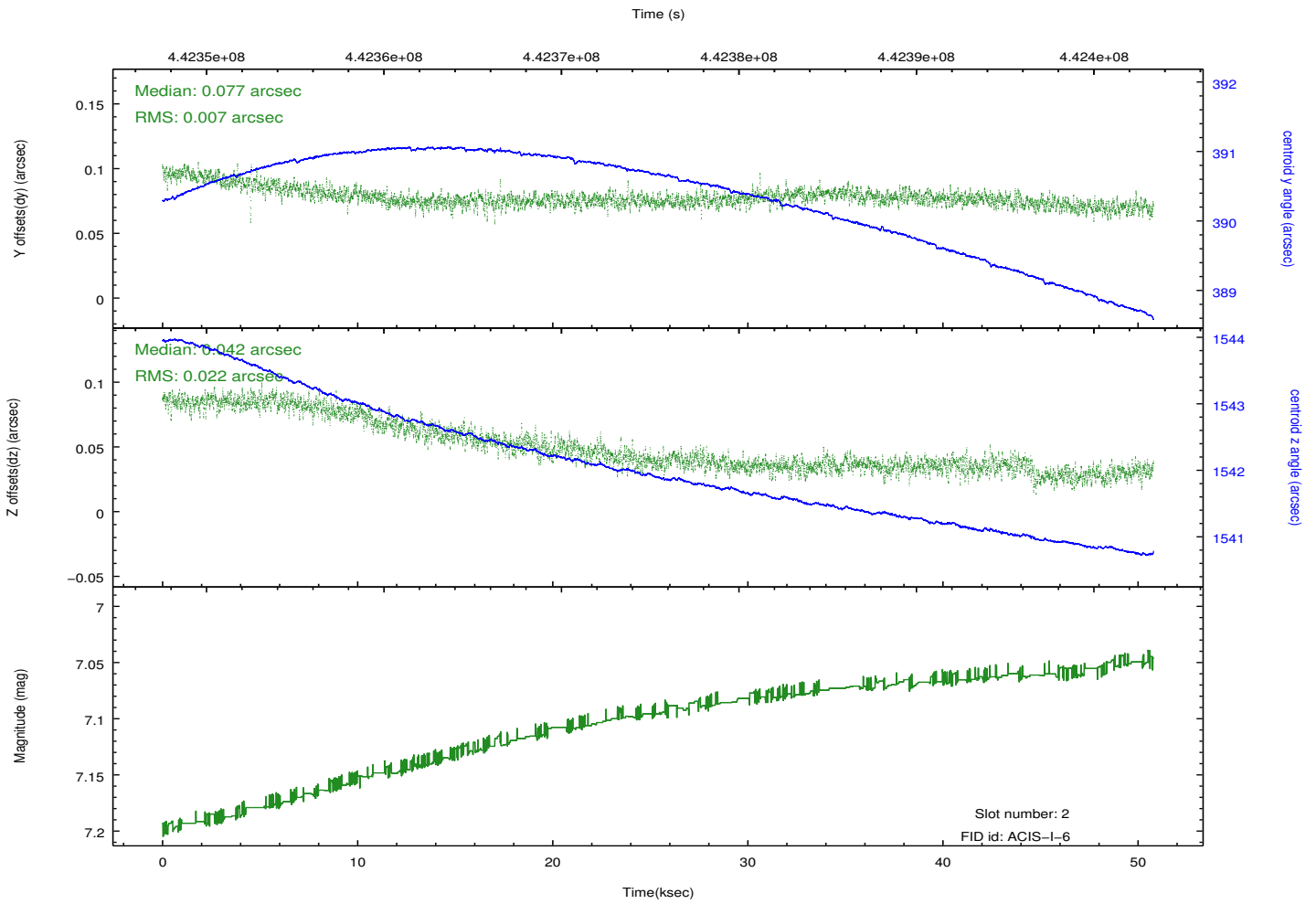
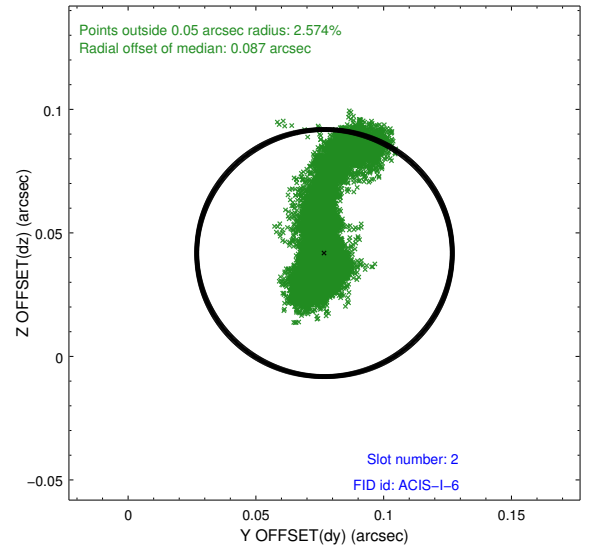
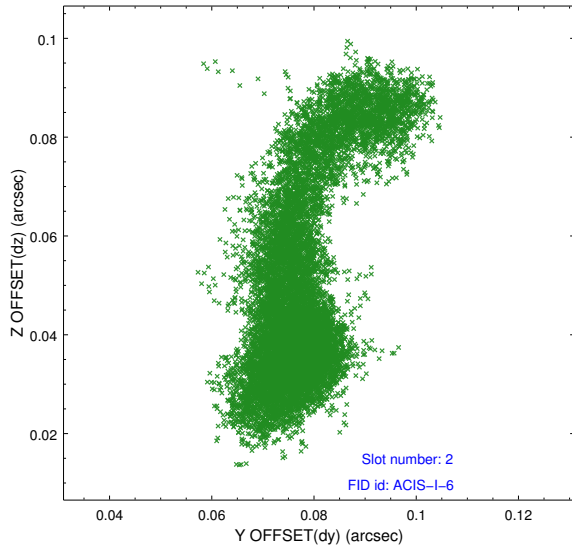
2.5.1 Slot 0



2.5.2 Slot 1



2.5.3 Slot 2



A Summary

A.1 Status

V&V Scientist	Beth Sundheim
V&V Date (YYYY-MM-DD)	2018.03.06
V&V Edition	2
V&V Disposition and Status	OK
V&V Charge Time	50.052600384951

A.2 Comments

The guide star in slot 5 was removed from the aspect solution due to poor data quality. The aspect solution is improved by the removal of this slot from the solution.

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The focal plane temperature during part of this observation was warmer than the upper limit for optimum calibration of the ACIS gain and spectral resolution (i.e., -114.0 C for ACIS-I and -112.0 C for ACIS-S).

The Chandra calibration team calibrates the ACIS gain and spectral resolution using data from the external calibration source (ECS). ECS data show that the frontside-illuminated (FI) CCDs are more temperature sensitive than the backside-illuminated (BI) CCDs.

A summary of the current calibration status of the ACIS gain and spectral resolution can be found at:

http://asc.harvard.edu/cal/Acis/Cal_prods/Gain_and_Spectral_Resolution/A_CIS_response_summary.html

The main points are:

- 1) The gain on BI chips remains within 0.3% (i.e., the systematic uncertainty in the ACIS gain quoted on the Chandra Calibration Status Summary web page) at all measured temperatures.
 - 2) The gain on FI chips remains within 0.3% below row 600 at all measured temperatures.
 - 3) The gain on FI chips above row 600 can be underestimated by as much as 1% for focal plane temperatures exceeding -116 C.
 - 4) The spectral resolution (i.e., FWHM) on BI chips is insensitive to the focal plane temperature.
 - 5) Warmer focal plane temperatures increase the FWHM on FI chips by up to 30 eV near row 512 and by up to 70 eV near the top of the chips.
- In summary, the user should be cautious in the spectral analysis of high S/N emission lines detected on the top half of FI chips in this observation. Default processing with the current version of the CALDB will underestimate photon energies by up to 1% and broaden emission lines by up to 70 eV.